

Claims

WHAT IS CLAIMED IS:

5 1. A wireless display circuit comprising:

10        a graphics processing circuit operatively coupleable to a frame buffer and operative to render graphics data based on rendering commands and to store rendered graphics data in the frame buffer;

15        a video decoder operatively responsive to a compressed video stream and operative to produce decoded video from the compressed video stream for display on a local display;

20        a short range wireless transmitter operatively coupled to the graphic processing circuit;

25        a data encoder operatively coupled to the frame buffer and to the short range wireless transmitter, operative to encode the rendered graphics data stored in the frame buffer and to recompress the decoded video; and

30        wherein the short range wireless transmitter transmits the encoded rendered graphics data and the recompressed decoded video.

20 2. The circuit of claim 1 including a blending circuit operative to blend rendered graphics data and the decoded video, prior to the data encoder recompressing the decoded video to produce image frames containing recompressed video with encoded graphics data.

25 3. The circuit of claim 1 wherein the data encoder includes a suitably programmed processor operatively coupled to the frame buffer via a local bus.

30 4. The circuit of claim 3 wherein the suitably programmed processor carries out MPEG encoding on the rendered graphics data and on the decoded video to produce compressed image frames containing recompressed video with encoded

graphics data that are wirelessly transmitted by the short range wireless transmitter.

5. The circuit of claim 1 wherein the data encoder includes a hardware based data encoder resident on at least one of a same printed circuit board and same integrated circuit die as the graphics processing circuit.

6. A wireless display system comprising:

    a first unit having at least:

        a first local display;

        a first frame buffer;

    5      a graphics processing circuit operatively coupleable to a frame buffer and operative to render graphics data based on rendering commands and to store rendered graphics data in the frame buffer;

    a first video decoder operatively responsive to a compressed video stream and operative to produce decoded video from the compressed video stream for display on a first local display;

10      a short range wireless transmitter operatively coupled to the graphic processing circuit;

    a data encoder operatively coupled to the frame buffer and to the wireless transmitter, operative to encode the rendered graphics data stored in the frame buffer and to recompress the decoded video; and

15      wherein the short range wireless transmitter transmits the encoded rendered graphics data and the recompressed decoded video;

    a second unit having at least:

        a second local display;

        a second frame buffer;

20      a short range wireless receiver responsive to the encoded rendered graphics data and recompressed decoded video; and

        a video decoder operatively coupled to the short range wireless receiver and to the second frame buffer and operative to produce decoded video from the received encoded rendered graphics data and recompressed decoded video for storage in the second frame buffer for display on the second local display.

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7. The system of claim 6 wherein the video decoder includes a suitably programmed processor operatively coupled to the second frame buffer via a local bus.

8. The system of claim 7 wherein the suitably programmed processor carries out MPEG decoding on the received encoded rendered graphics data and recompressed decoded video to produce decompressed image frames.
- 5 9. The system of claim 6 where in the video decoder includes a hardware based video decoder resident on at least one of a same printed circuit board and same integrated circuit die as the frame buffer.

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10. A method for providing image data for a wireless display comprising the steps of:  
processing rendering commands to produce rendered graphics image data  
and storing the rendered graphics image to a frame buffer;  
retrieving the rendered graphics image data from the frame buffer via a  
5 local bus;  
encoding the retrieved rendered graphics image data to produce encoded  
graphics image data; and  
sending the encoded graphics image data to a short range wireless receiver  
using a short range wireless transmitter.

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11. The method of claim 10 including the steps of:  
decompressing a compressed video stream to produce a decompressed  
video stream;  
recompressing the decompressed video stream to produce a recompressed  
15 video stream; and  
wherein the step of sending the encoded graphics image includes sending the  
recompressed video stream using the short range wireless transmitter.

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12. The method of claim 11 including the steps of:  
combining the rendered graphics image data [overlaid] with the  
decompressed video stream to produce frames of image data  
storing the frames of image data in the frame buffer prior to the step of  
recompressing; and  
retrieving the frames of image data for the step of recompression.

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13. The method of claim 10 including the step of locally displaying the rendered  
graphics image data on a local display.

14. The method of claim 10 including the steps of:

- receiving, via a short range wireless receiver, a compressed video stream containing graphics data and recompressed video;
- decompressing the received compressed video stream and producing decompressed image frames; and
- displaying the decompressed image frames on a local display.

15. A method for providing image data for a wireless monitor comprising:  
processing rendering command using a first processor to produce rendered  
graphics image data and storing the rendered graphics image data to a frame buffer;  
retrieving the rendered graphics image data from the frame buffer over a local bus  
5 using a second processor;  
encoding, by the second processor, the retrieved rendered graphics image data to  
produce encoded graphics image data; and  
sending the encoded graphics image data to a wireless monitor using a short range  
wireless transmitter.

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16. The method of claim 15 including the steps of:  
decompressing a compressed video stream to produce a decompressed  
video stream;  
recompressing the decompressed video stream to produce a recompressed  
15 video stream; and  
wherein the step of sending the encoded graphics image includes sending the  
recompressed video stream using the short range wireless transmitter.

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17. The method of claim 16 including the steps of:  
combining the rendered graphics image data [overlaid] with the  
decompressed video stream to produce frames of image data  
storing the frames of image data in the frame buffer prior to the step of  
recompressing; and  
retrieving the frames of image data for the step of recompression.

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18. The method of claim 15 including the step of locally displaying the rendered  
graphics image data on a first local display.

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receiving, via a short range wireless receiver, a compressed video stream containing graphics data and recompressed video;

decompressing the received compressed video stream and producing decompressed image frames; and

5 displaying the decompressed image frames on a second local display.

20. The method of claim 15 including the step of wirelessly sending drawing commands to a short range wireless receiver.

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21. A method for providing image data for a wireless monitor comprising;  
decompressing a compressed video stream to produce a decompressed video  
stream from the compressed video stream;  
storing frames from the video graphics stream in a frame buffer;  
5 recompressing the stored frames; and  
wirelessly transmitting the recompressed frames using a short range wireless  
transmitter.

22. The method of claim 21 including the step of locally displaying the frames on a  
10 first local display.

23. The method of claim 21 including the steps of:  
receiving, via a short range wireless receiver, the recompressed frames;  
decompressing the received recompressed frames and producing  
15 decompressed image frames; and  
displaying the decompressed image frames on a second local display.